Chico
Golden
Empire
Amateur
Radio
Society, Inc.

“Dedicated to Public Service”

THE RADIATOR

SPECIAL SERVICE CLUB

W6RHC
IRLP #8170

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P.O.Box 202 Chico, CA 95927

July 2024 Newsletter	GEARS Founded August 13, 1939

We had a very successful Field Day in terms of operating, score, turnout and energy. We ran four stations: one for phone, one for FT8, one for cw and a GOTA (get on the air) station. Those four stations made about 380 contacts over the 24 hours of the event.

The GOTA station was very successful, making phone contacts. Three new, young hams were its main operators on Saturday: Eli, KO6EDW, Eli, KO6FBP, and Luke, KO6EWA. Eli, KO6EDW, returned on Sunday and operated all morning. Will, KN6MIY, also operated and made contacts at the GOTA station. When it was over, he said he’d had a fantastic time and would definitely be back next year. Altogether, the GOTA station made 60 qsos. The GOTA station mainly relied on an endfed wire antenna, made to operate on 10 through 40 meters. The operators made contacts mainly on 15 and 20 meters, working stations around the country and into Canada.

Kris, KK0NIG, set up an unusual-looking antenna called an octopus antenna. Mounted on a mast, it has eight arms with whips at the ends. Kris spent a lot of time in the operator’s chair over the weekend and netted nearly 100 FT8 contacts.

Michael, N6FAV, set up his dipole between a couple of big trees over the Masonic Family Center parking lot. He made a number of phone contacts, but where he really made points was on FT8. He made about 100 FT8 contacts. Jevon, K6YLH, and Larry, KF6NCX, ran the cw station. They used a 40 meter vertical, a Buddipole and a 10 meter vertical. Together they made a little over 100 contacts, mainly on 15 and 40 meters. They had planned to use a Buddihex hexbeam antenna, but operator error by Larry resulted in the antenna falling off the mast and breaking a couple of its arms as it was being raised. Hopefully, it can be used in next year’s Field Day once it’s repaired.

Bill, KC6UFE, Darell, KN6QXL, and Jamie, KN6PWW, also operated and made qsos. Kyle, KN6ERB, operated as well from the Field Day site.

Saturday night, Bill, KC6UFE, went home and did some Field Day operating from his home station. He made about 50 contacts, assigning the points he made to GEARS, adding to our total score. Among the qsos Bill made were contacts with several DX stations, including operators in Corsica, Slovenia and Cayman Islands.

We got bonus points because:
-- Rock brought his solar unit and we used it.
-- Jamie did a great job as safety officer.
-- Jevon made a satellite contact
-- we had an information table
-- we got news coverage
The evaporative cooler we rented provided a nice cool breeze, the barbecue and potluck were great as usual.

Larry Mitchell KF6NCX

July 2024 Calendar

Sun	Mon	Tue	Wed	Thu	Fri	Sat
	1 7pm GARS Net 7pm GEARS Board Meeting 8pm ARES Net	2 7pm PARS Net 7:30pm GEARS Net	3	4 7:30pm Simplex Net	5	6
7 8pm OARS Net	8 7pm GARS Net 8pm ARES Net	9 7pm PARS Net 7:30pm GEARS Net	10	11 7:30pm Simplex Net	12 7pm OARS meeting 7pm GARS meeting	13 9am Chico Breakfast
14 8pm OARS Net	15 7pm GARS Net 8pm ARES Net 6pm GEARS Meeting	16 7pm PARS Net 7:30pm GEARS Net	17	18 7:30pm Simplex Net	19	20
21 8pm OARS Net	22 7pm GARS Net 8pm ARES Net	23 7pm PARS Net 7:30pm GEARS Net	24	25 7:30 Simplex Net	26	27 9am OARS Breakfast
28	29 7pm GARS Net 8pm ARES Net	30 7pm PARS Net 7:30pm GEARS Net				

VEC Testing, FCC License Exam available by appointment. For information or registration call Tom Rider, W6JS 530-514-9211
Chico Breakfast 2nd Saturday 9am Farmers Skillet Cohasset Rd, Chico
GEARS Board Meeting 1st Monday 7pm by Google video meetups.
PARS Meeting 2nd Thursday 6:30pm, doors open 6pm Old Magalia Community Resource Center
OARS Meeting Second Friday of the month, St. Pauls Episcopal Church Hall, Oroville.
GARS Meeting Second Friday of the month, Lutheran Church Hall, Artois.
GEARS Meeting, Doors open 6pm, meeting 7pm at Chico Public Library, 1108 Sherman Ave, Chico
OARS Breakfast 4th Saturday of the month, at Cornucopia of Oroville.

NETS:
OARS Club Net Sunday 8pm 146.655 Mhz - PL 136.5
GARS Club Net Monday,7:00 pm 147.105 MHz + PL 110.09, secondary: 146.850 MHz-PL 110.9
Yuba Sutter Club Net Monday 7pm 146.085 MHz + PL 127.3
GEARS Club Net Tuesdays 7:30 PM 146.850 MHz - PL 110.9
PARS Club Net Tuesday 7pm 145.290 - PL 110.9
Simplex Net Thursday 7:30 p.m. 146.52 no tone
Yuba Sutter ARES Net Thursdays 7pm 146.085 MHz + PL 127.3
Sacramento Valley Traffic Net Nightly 9:00 PM 146.850 MHz - PL 110.9

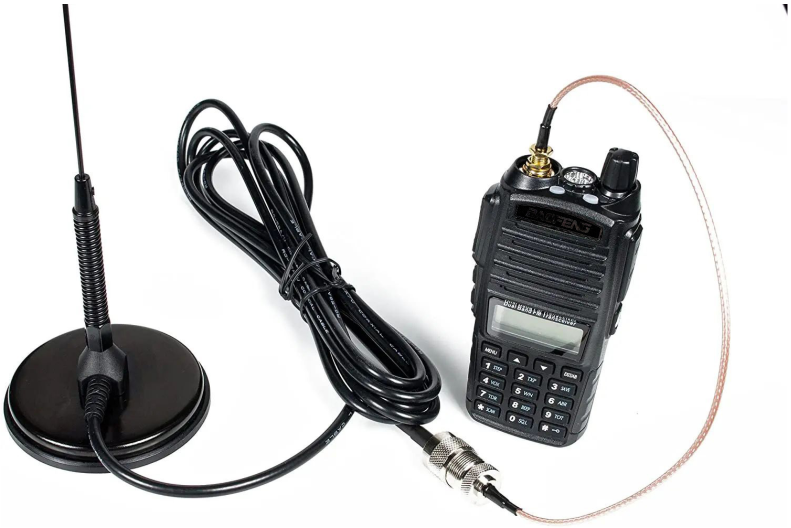
Good News, GEARS t-shirts are now available anytime.

Cali Custom t-shirt shop in the Chico Mall (Marketplace) has our logo on file and can make a customized shirt for you. They can also do GEARS hoodies and other items.

Just go in and ask for what you want. The artwork is filed under GEARS.

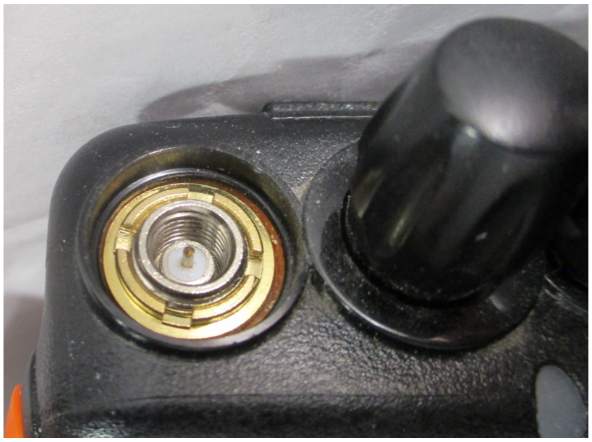
Wake up your handheld radio

By Jim Matthews K6EST

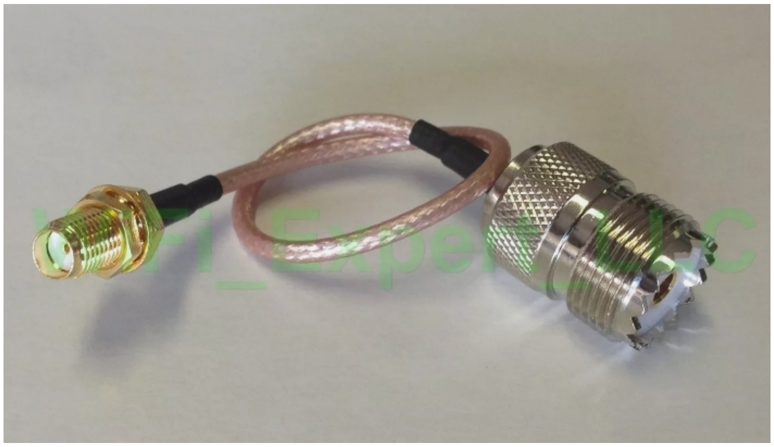


The GEARS repeaters have somewhat mediocre reception in Chico. They work fine for base or mobile radios, but if you've tried to use a handheld you've probably been disappointed. This is due to the GEARS East repeater being in Forrest Ranch among trees and the ridge can shadow the reception in town. The GEARS West repeater is about 60 miles from Chico. If you are trying to transmit from inside your home, the signal is even worse.

Fortunately there is a solution, use an outside antenna. With an inexpensive mobile mag-mount antenna mounted a metal surface like an outside air conditioner or even a cookie sheet on the roof will allow you to put out a much stronger signal.



Male SMA antenna connection



Female SMA to SO239 adapter

To connect the antenna you will need an adapter. Most handheld radios now use a male SMA connector. The antenna usually uses a PL-259 connector, the female for this is a SO-239. You can find female SMA to SO239 adapters on Amazon and Ebay. This [VHF/UHF antenna on Amazon] has worked well for me. Give this simple fix a try, you'll put out a much better signal.

What is WSPR?

By Elizabeth Klinc, KE8FMJ

Let’s start with the basics:

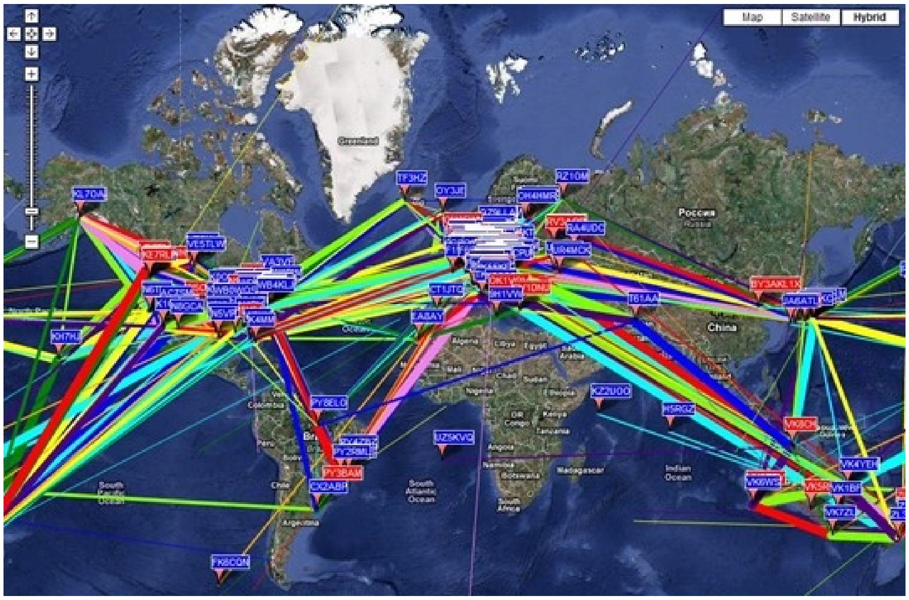
WSPR stands for Weak Signal Propagation Reporter—a protocol implemented in a computer program used for weak-signal radio communication between hams.

It lets users send and receive low-power transmissions for testing MF and HF propagation paths.

Pronounced “whisper,” WSPR was designed and written initially by Nobel Prize winner and FT8 creator Joe Taylor, K1JT.

The software code is now open source and updated by a small team.

If you’ve wondered if a band is open, WSPR can tell you.



As noted by Joe Taylor, K1JT, and Bruce Walker, W1BW, in their November 2010 QST article, “WSPRing Around the World,” WSPR transmits and receives but does not support normal types of on-the-air conversation. It sends and receives specially coded, beacon-like transmissions which establish whether particular propagation paths are open. Transmissions convey a callsign, station location, and power level using a compressed data format with strong forward error correction (FEC) and narrow-band, four-tone frequency-shift-keying (FSK).

K1JT notes that FEC greatly improves chances of copy and reduces errors to an extremely low rate. The signal bandwidth is only 6 Hz. Combined with randomized time-sharing, this assures that dozens of WSPR signals can fit into a 200 Hz segment of each amateur band. The WSPR protocol is effective at signal-to-noise ratios as low as -28 dB in a 2500 Hz bandwidth, about 10 to 15 dB below the threshold of audibility. On most bands, typical WSPR power levels are 5W or less (sometimes significantly less).

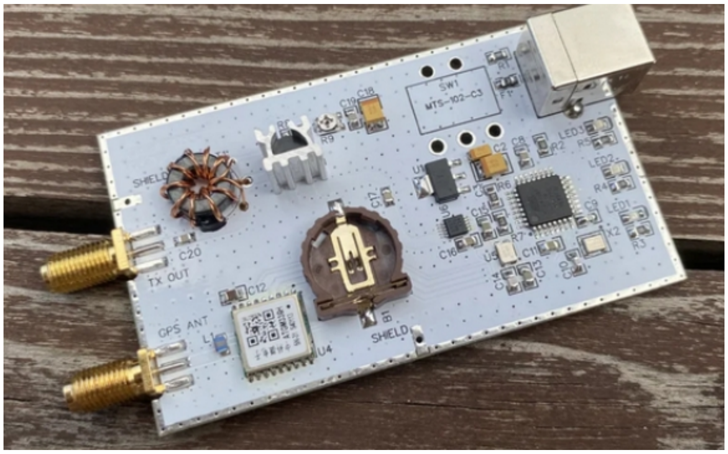
As the protocol has evolved, enhancements to WSPR have included upgrades in its decoder’s sensitivity, improved ability to handle larger numbers of signals in crowded sub-bands, and better detection of false decodes.

To take advantage of WSPR on the amateur bands, you’ll need a radio (one with USB audio is preferred) and a computer with an Internet connection. As users have pointed out online, you don’t need to transmit. Your system can still report what it hears.

The standard message is <callsign> + <4 character locator> + <dBm transmit power>. For example, “KE8FMJ EM89 37” is a signal from station KE8FMJ in Maidenhead grid cell “EM89,” sending 37 dBm, or about 5.0W.

A SUPER-SIMPLE STANDALONE WSPR BEACON

By: Dan Maloney N7DPM



We've said it before and we'll say it again: being able to build your own radios is the best thing about being an amateur radio operator. Especially low-power transmitters; there's just something about having the know-how to put something on the air that'll reach across the planet on a power budget measured in milliwatts.

This standalone WSPR beacon is a perfect example. If you haven't been following along, WSPR stands for "weak-signal propagation reporter," and it's a digital mode geared for exploring propagation that uses special DSP algorithms to decode signals that are far, far down into the weeds; signal-to-noise ratios of -28 dBm are possible with WSPR.

Because of the digital nature of WSPR encoding and the low-power nature of the mode, [IgrikXD] chose to build a standalone WSPR beacon around an ATMega328. The indispensable Si5351 programmable clock generator forms the RF oscillator, the output of which is amplified by a single JFET transistor. Because timing is everything in the WSPR protocol, the beacon also sports a GPS receiver, ensuring that signals are sent only and exactly on the even-numbered minutes. This is a nice touch and one that our similar but simpler WSPR beacon lacked.

This beacon had us beat on performance, too. [IgrikXD] managed to hit Texas and Colorado from the edge of the North Sea on several bands, which isn't too shabby at all with a fraction of a watt.

For more information https://github.com/IgrikXD/WSPR-beacon

EMAILS OVER RADIO

by: Bryan Cockfield

The modern cellular network is a marvel of technological advancement that we often take for granted now. With 5G service it's easy to do plenty of things on-the-go that would have been difficult or impossible even with a broadband connection to a home computer two decades ago. But it's still reliant on being close to cell towers, which isn't true for all locations. If you're traveling off-grid and want to communicate with others, this guide to using Winlink can help you send emails using a ham radio.

While there are a number of ways to access the Winlink email service, this guide looks at a compact, low-power setup using a simple VHF/UHF handheld FM radio with a small sound card called a Digirig. The Digirig acts as a modem for the radio, allowing it to listen to digital signals and pass them to the computer to decode. It can also activate the transmitter on the radio and send the data from the computer out over the airwaves. When an email is posted to the Winlink outbox, the software will automatically send it out to any stations in the area set up as a gateway to the email service.

Like the cellular network, the does rely on having an infrastructure of receiving stations that can send the emails out to the Winlink service on the Internet; since VHF and UHF are much more limited in range than HF this specific setup could be a bit limiting unless there are other ham radio operators within a few miles. This guide also uses VARA, a proprietary protocol, whereas the HF bands have an open source protocol called ARDOP that can be used instead. This isn't the only thing these Digirig modules can be used for in VHF/UHF, though. They can also be used for other digital modes like JS8Call, FT8, and APRS.

For more information: https://youtu.be/_znP7FNtNs8?si=Qx8L46IZIDPz9QHW

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Your dues and contributions support our local repeaters, ARES, Field Day and outreach events to keep amateur radio alive in our area. GEARS also makes donations to support other local repeaters and clubs.

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